

IN THE CLAIMS:

Please amend the claims as follows:

1-116 (Cancelled)

117. (Previously Cancelled) A device comprising:

at least one vertically oriented carbon nanotube embedded in a silicon-based substrate without protruding beyond the said substrate in air.

118. (Previously Cancelled) A device of claim 117, wherein the said substrate material comprises a member of the class consisting of undoped silicon, doped silicon, crystalline silicon, polysilicon, silicon nitride, undoped silicon dioxide, and doped silicon dioxide.

119. (Previously Cancelled) A device of claim 117, wherein the said carbon nanotube is fabricated directly within a template in the said substrate.

120. (Previously Cancelled) A device of claim 117, wherein said vertically oriented carbon nanotube is at least partially electrically isolated from the said substrate.

121. (Cancelled) A device comprising:

at least one vertically oriented carbon nanotube;

at least one horizontal conductive layer, wherein the said horizontal conductive layer is electrically coupled to said vertically oriented carbon nanotube; and

wherein the said horizontal conductive layer includes patterned lines.

122. (Previously Cancelled)

123. (Previously Cancelled).

124. (Cancelled) A device of claim 121, wherein said carbon nanotube is conductive.

125. (Cancelled) A device of claim 121, wherein said horizontal conductive layer material comprises a member of the class consisting of aluminum, copper, tungsten, titanium, nickel, chromium, and their alloys.

126. (Previously Cancelled) A device comprising:
at least one vertically aligned carbon nanotube, wherein said vertically aligned carbon nanotube is fabricated within vertically aligned holes within a substrate material;
at least one horizontal conducting interconnect, wherein said interconnect is electrically coupled to said vertically aligned carbon nanotube; and
wherein a plurality of said vertically aligned carbon nanotubes form a pattern in the said substrate material.

127. (Previously Cancelled) A device of claim 126, wherein said substrate material comprises a member of the class consisting of silicon, silicon nitride, silicon dioxide, aluminum, alumina, and gallium arsenide.

128. (Previously Cancelled)

129. (Previously Cancelled) A device comprising:
a first electronic device having at least one logic device;
a second electronic device having at least one logic device; and
at least one carbon nanotube, wherein the said carbon nanotube is electrically coupled to said first electronic device and said second electronic device.

130. (Previously Cancelled) A device of claim 129, wherein said carbon nanotube is a vertically oriented carbon nanotube.

131. (Previously Cancelled) A device of claim 129, wherein said carbon nanotube is a horizontally oriented carbon nanotube.

132. (Previously Cancelled)

133. (Previously Cancelled) A device having plurality of carbon nanotubes in a substrate comprising:
a first carbon nanotube;
a second carbon nanotube; and
wherein said first carbon nanotube crosses path with said second carbon nanotube at a point such that said first carbon nanotube and said second carbon nanotube are electrically coupled.

134. (Cancelled) A device comprising:
at least one vertically oriented carbon nanotube embedded in a substrate, wherein the said nanotube is protruding from the said substrate;
at least one horizontal conductive layer, wherein the said horizontal conductive layer is electrically coupled to said vertically oriented carbon nanotube; and
wherein the said horizontal conductive layer includes patterned lines.
135. (Previously Cancelled) A device comprising:
at least one vertically oriented carbon nanotube, wherein said carbon nanotube is conductive; and
at least one horizontal conductive layer, wherein the said horizontal conductive layer is electrically coupled to said vertically oriented carbon nanotube.
136. (Previously Cancelled) A device of claim 135, wherein the said horizontal conductive layer includes a blanket deposited film.
137. (New) A device comprising:
at least one carbon nanotube electrically coupled to a patterned conductive layer within a horizontally oriented substrate, wherein substantially all of the carbon nanotubes are vertically oriented.
138. (New) The device of Claim 137, wherein the at least one vertically oriented carbon nanotube is partially embedded within the substrate.
139. (New) The device of Claim 137, wherein the at least one vertically oriented carbon nanotube is fully embedded within the substrate without protruding beyond the substrate.
140. (New) The device of Claim 137, wherein the at least one vertically oriented carbon nanotubes is disposed outwardly from the substrate.
141. (New) The device of Claim 137, wherein the substrate comprises a substrate material from a class consisting of undoped silicon, doped silicon, crystalline silicon, polysilicon, silicon nitride, undoped silicon dioxide, and doped silicon dioxide.

142. (New) The device of Claim 137, wherein at least one vertically oriented carbon nanotube is electrically isolated from the substrate.

143. (New) The device of Claim 137, wherein the at least one vertically oriented nanotube is fabricated within a specified area of the substrate.

144. (New) A device of claim 137, comprising a second patterned conductive layer within the horizontally oriented substrate.

145. (New) A device of claim 137, wherein the carbon nanotube is fabricated within vertically aligned hole within the substrate, wherein the hole has a nano-sized diameter.

146. (New) A device of Claim 145, wherein the hole diameter is preferably in the range from about 1 nanometer to about 50 nanometers.

147. (New) The device of Claim 137, wherein said carbon nanotube is conductive.

148. (New) A device of claim 137, wherein the conductive layer material comprises a member of the class consisting of aluminum, copper, tungsten, titanium, nickel, chromium, and their alloys.